L 17602-63 S/056/63/044/003/015/053

Shape of the bremsstrahlungspectrum...

ASSOCIATION: Fizicheskiy institut im. P. N. Lebedeva Akademii nauk SSSR (Physics Institute im. P. N. Lebedev of the Academy of Sciences USSR

SUBMITTED: October 17, 1962

Card 2/2

TAEL, Viktor; KORPMAN, H., red.; VAHTRE, I., tekhn. red.

[Noise] Mura. Tallin, Eesti Riiklik Kirjastus, 1961. 91 p. [In Estonian] (MIRA 15:1)

(Noise control)

AGUR, Ustus; KORPMANN, H., red.; TONISSON, A., tekhn.red.

[Thinking machines; present state and future of electronic computers] Motlevad masinad; elektronarvutusmasina tanapaev ja tulevik. Tallin, Eesti Riiklik Kirjastus, 1961. 179 p. (MIRA 14:12)

(Electronic calculating machines)

KORPONAI, Gyula

State and tasks of technical development in the machinery industry. Munka 10 no.1:6-7 Ja '60.

1. Koho- es Gepipari Miniszterium iparpolitikai foosztalyanak vezetoje, Budapest.

KORPOS, Lorinc

"Up-to-date dimensioning" by Gabor Galgoczy. Reviewed by Lorinc Korpos. Jarmu mezo gep 9 no.2:79-80 F '62.

KORPOS, Lorinc

Welding days. Jarmu-mezb.gep. 10 no.9:359 S'63

1. "Jarmuvek - Mezogazdasagi Gepek" Technikai Szerkesztoje.

KORPOS, Lorinc

"Calculation of cranes and crane tracks of steel construction" by Karoly Massanyi. Reviewed by Lorinc Korpos. Gep 16 no.12:494-495 D '64.

MIKHAL'CHENKO, G.A.; KARPOV, I.K.

Radioluminescence of activated lithium iodide single crystals.
Opt. i spektr. 15 no.4:490-493 O '63. (MIRA 16:11)

KORPOV, V. L., NIKITINA, T. S., KUZ'MINSKIY, A. S., AND OKSENT'YEVICH, L. A.

"Radiation Vulcanization of Rubber"

Truly Transactions of the First Conference on Radioaction Chemistry, Moscow, Izd-vo AN SSSR, 1958. 330pp.
Conference -25-30 March 1957, Moscow

GERASIMCHUK, I.S.; LINDVET, B.; SAKS, E.; JOOSTI, H., inzh.
retsenzent; KORROVITS, Kh., kand. tekhn. nauk, red.

[Fibrolite insulating tiles; their properties and use in building] Teploizoliatsionnye fibrolitovye plity; osnovnye svoistva i primenenie v stroitel'stve. Tallinn, Gos. kom-t Soveta Ministrov ESSR po delam stroit., 1964. 133 p.
(MIRA 17:6)

1. Rabotniki Tallinskogo zaveda nerudnykh materialov Soveta narodnogo khozyaystva Estonskoy SSR (for Gerasimchuk, Lindvet, Saks)

KORPUKHIN, V. I.

90

SOV/6176

PHASE I BOOK EXPLOITATION

Konobeyevskiy, S. T., Corresponding Member, Academy of Sciences USSR, Resp. Ed.

Deystviye vadernykh izlucheniy na materialy (The Effect of Nuclear Radiation on Materials). Moscow, Izd-vo AN SSSR, 1962. 383 p. Errata slip inserted. 4000 copies printed.

Sponsoring Agency: Akademiya nauk SSSR. Otdeleniye tekhnicheskikh nauk; Otdeleniye fiziko-matematicheskikh nauk.

Resp. Ed.: S. T. Konobeyevskiy; Deputy Resp. Ed.: S. A. Adasinskiy; Editorial Board: P. L. Gruzin, G. V. Kurdyumov, B. M. Levitskiy, V. S. Lyashenko (Deceased), Yu. A. Martynyuk, Yu. I. Pokrovskiy, and N. P. Pravdyuk; Ed. of Publishing House: M. G. Makarenko; Tech. Eds: T. V. Polyakova and I. N. Dorokhina.

Card 1/14

90

The Effect of Nuclear Radiation (Cont.) SOV/6176

PURPOSE: This book is intended for personnel concerned with nuclear materials.

COVERAGE: This is a collection of papers presented at the Moscow Conference on the Effect of Nuclear Radiation on Materials, held December 6-10, 1960. The material reflects certain trends in the work being conducted in the Soviet scientific research orginization. Some of the papers are devoted to the experimental study of the effect of neutron irradiation on reactor materials (steel, ferrous alloys, molybdenum, avial, graphite, and nichromes). Others deal with the theory of neutron irradiation effects (physico-chemical transformations, relaxation of internal stresses, internal friction) and changes in the structure and properties of various crystals. Special attention is given to the effect of intense γ-radiation on the electrical, magnetic, and optical properties of metals, dielectrics, and semiconductors.

Card 2/14

KORPUN, Ya.Yu.; TSESEVICH, V.P.

Aleksandr Konstantinovich Kononovich, outstanding Ukrainian astrophysicist; his predecessors and disciples. Ist.-astron. issl. no.2:289-352 '56. (MLRA 10:6)
(Kononovich, Aleksandr Konstantinovich, 1850-1910)

TSESEVYCH, Vladimir Petrovich; KORPUN, YA.YU.

[Tymoshenko, mechanical engineer and inventor] Mekhanik-vynakhidnykh I.A.Tymchenko. Kyiv, Derzhtekhvydav, 1961. 60 p. (MIRA 15:10)
(Tymoshenko, Iosyp Andriiovych, 1852-19.4)

L 39932-66 EWP(1) IJP(c) GG/BB/JXT(C2)/GD

ACC NR: AT6017140 SOURCE CODE: UR/0000/65/000/000/0207/0213

AUTHOR: Korpus, H.

51 B+1

ORG: People's Enterprise, Office Machines Plant, Semmerda, GDR (Narodnoye predpriyatiye, zavod kontorskikh mashin)

TITLE: Use of Soemtron 166 calculator-punched card machines 166 for the mechanization of control operations

SOURCE: Sovet ekonomicheskoy vzaimopomoshchi. Postoyannaya komissiya po koordinatsii nauchnykh i tekhnicheskikh issledovaniy. Sredstva i metody mekhanizatsii podgotovki i poiska nauchno-tekhnicheskoy informatsii, inzhenernogo i upravlencheskogo truda (Means and methods for mechanizing the preparation and research of scientific and technical information and of engineering and control work); lektsii, prochitannyye na vystavke "Inforga-65" v maye-iyune 1965 g. Moscow, 1965, 207-213

TOPIC TAGS: electronic data processing, control technology, punching machine, punched card, automatic control, accounting machine

ABSTRACT: The article discusses the punched card machines produced by the People's Typewriter Plant in Semmerda, which are used in control work: Soemtron 413 magnetic punch, Soemtron 423 magnetic verifier, Soemtron 432 punched card sorter, Soemtron 440 summary punch, Soemtron 402 tabulator, and the ASM 18 computer. Sorter S-432 can sort

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Card 2/2 HS

KORPUS, N., inzh.; SAVENKOV, V., zhurnalist

Brick factories serving several collective farms. Sel'.stroi. 14 no.12:18 D '59. (MIRA 13:4)
(Oboyan District--Brickmaking)

KORPUSENKO, L.A., Cand Med Sci — (diss) "Effect of downy astragalus colored ~~astragalus~~ on the functional state of the kidneys and hemodynamic indicators in certain heart and kidney diseases." Dnepropetrovsk, 1958, 16 pp (Min of Health UkSSR. Dnepropetrovsk State Med Inst) 200 copies (KL, 28-58, 110)

KORPUSNOVA, A.; SAVCHENKO, L.; KALMYKOVA, K.

[Sanitation room in an enterprise] Sanitarnyi post na predtpiiatii. Moskva, Medgiz, 1955. 2. p. (MLRA 10:5)
(INDUSTRIAL HYGIENE)

PHASE I BOOK EXPLOITATION SOV/5084

International Conference on the Peaceful Uses of Atomic Energy. 2d, Geneva, 1958.

Doklady sovetskikh uchenykh. [t.4] Khimiya radioelementov i radiatsionnykh prevrashcheniy (Reports of Soviet Scientists. v. 4.: Chemistry of Radioelements and Radiation Transformations) Moscow, Atomizdat, 1959. 323 p. 8,000 copies printed. (Series: Its: Trudy)

Ed. (Title page): A. P. Vinogradov, Academician; Ed.: V. I. Labaznov; Tech. Ed.: Ye. I. Mazel'.

PURPOSE: This collection of articles is intended for scientists and engineers interested in the applications of radioactive materials in science and industry.

COVERAGE: The book contains 26 separate studies concerning various aspects of the chemistry of certain radioactive elements and the processes of radiation effect on matter. These reports discuss present-day methods of reprocessing irradiated nuclear fuel, research in the chemistry of mercury, thorium, uranium, plutonium, and americium, problems related to the sorption and burying of radioactive wastes, the radiolysis of aqueous solutions and of organic compounds, the mechanism of polymer chain grafting, and the effect of radiation on natural and synthetic rubbers. V. N. Prusakov edited the present volume. Most of the reports are accompanied by references. Contributors to individual investigations are mentioned in annotations to the Table of Contents.

TABLE OF CONTENTS:

1/2

VINOGRADOV, A.P., akademik, red.; VERESHCHINSKIY, I.V., kand. khim. nauk, red.; GRAFOV, G.I., kand. khim. nauk, red.; KORPUSOV, G.V., kand. khim. nauk, red.; PRUSAKOV, V.N., kand. khim. nauk, red.; MATVEYEVA, A.V., red.; MAZEL', Ye.I., tekhn. red.

[Transactions. Selected reports by foreign scientists] Trudy. [Izbrannye doklady inostrannykh uchenykh] Moskva, Izd-vo Glav. uprav. po ispol'zovaniiu atomnoi energ. pri Sovete Ministrov SSSR. Vol.5. [Chemistry of radioactive elements and of radiation transformations] Khimiia radioelementov i radiatsionnykh prevrashchenii. Pod obshchei red. A.P.Vinogradova. 1959. 715 p. (MIRA 14:7)

1. Vtoraya mezhdunarodnaya konferentsiya po mirnomu ispol'zovaniyu atomnoy energii, Zheneva, 1958.
(Radioactive substances) (Radiochemistry)

Korpusov, G.V.

PHASE I BOOK EXPLOITATION SOV/4563

Metody polucheniya i izmereniya radioaktivnykh preparatov; sbornik statey (Methods for the Production and Measurement of Radioactive Preparations; Collection of Articles) Moscow, Atomizdat, 1960. 307 p. Errata slip inserted. 6,000 copies printed.

General Ed.: Valeriy Viktorovich Bochkarev; Ed.: M.A. Saguro; Tech. Ed.: N.A. Vlasova.

PURPOSE: This collection of articles is intended for scientific and technical personnel working in the production of radioactive isotopes.

COVERAGE: The collection contains original studies on methods of obtaining and measuring radioactive preparations. According to the foreword, the articles contain new data, and are of theoretical or practical interest to the extent that they discuss methods or give process information. In addition to several survey articles the collection contains discussions on the production of radioactive isotopes and inorganic radioactive preparations, including a number of carrier-free isotopes and several colloidal and other therapeutic preparations. Also discussed are methods for preparing a number of tagged organic compounds, problems in the analysis of tagged organic compounds, the absolute and relative measurement of activity, and the radiometric analysis of preparations. New instruments and equipment are described and instructions concerning measurement methods and technique are included. V.I. Levin, Candidate of Chemical Sciences, V.P. Shishkov, Candidate of Technical Sciences, I.N. Bukharov, Candidate of Biological Sciences, and V.I. Shostak, Candidate of Chemical Sciences, are mentioned as having helped directly in the selection and preparation of the material for publication. References accompany each article.

TABLE OF CONTENTS:

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S/186/60/002/005/005/017
A051/A130

AUTHORS: Patrusheva, Ye. N.; Brezhneva, N. Ye.; Korpusov, G. V.

TITLE: The extraction of rare earth products of division using phosphorous-organic compounds (diamylphosphoric acid)

PERIODICAL: Radiokhimiya, v. 2, no. 5, 1960, 541 - 548

TEXT: The authors have investigated a group of alkylphosphoric acids as extracting agents for the formation of micro-quantities of ittrium and rare earth elements. Data are submitted on the distribution of certain rare earth elements amongst solutions of diamylphosphoric acid $(C_5H_{11}O)_2$ POOH (abbreviated HA) and of nitric acid. A study was made of the relationship of the distribution coefficients of these rare earth elements in the extraction using diamylphosphoric acid, to the concentration of: a) nitric acid, b) hydrogen ions, c) extracting agent, d) nitrate-ions, and also a determination was made of the relationship of the distribution coefficients of rare earths to the values of their atomic numbers. A probable mechanism for extraction of rare earth elements has been recommended using diamylphosphoric acid and an evaluation was given of the equilibrium

constant of the reaction of the extracting complex formation. The main experimental investigations were carried out with uni-basic diamylphosphoric acid, actually not containing dibasic acid (H_2A). The HA also did not contain isoforms. The experiments showed that when extracting with diisoamylphosphoric acid, the distribution coefficients obtained were somewhat less. Benzene and hydrated kerosene were used as the diluents which were first brought to equilibrium with the initial solutions. The extraction was conducted in graduated funnels of the usual type, at a temperature maintained at $\pm$ 3°C. The determination of the initial and equilibrial acidity of the water phase was carried out by direct titration with alkali. The element distribution was determined using radioactive indicators Ce^{144} → Pr^{144}; Pm^{147}, Y^{91}, Tu^{169}, $Eu^{152-154}$. Since Ce^{144} in its radioactive decay forms its bi-product Pr^{144}, having a half-life of 17.5 min., the measurements of the specific activity were carried out after a radioactive equilibrium was reached (after 1.5 - 2 hours). The experimental procedure determined: 1) the relationship of the distribution coefficients of ittrium and europium to the concentration of nitric acid, 2) to the concentration of the hydrogen ions, 3) of the nitrate ions, 4) of the diamylphosphoric

The extraction of rare earth ....

acid, 5) the relationship of certain rare earth element distribution coefficients to their atomic numbers. Tables 1, 2 and Figures 1 - 5 show the experimental results, respectively. In discussing the obtained data the authors point out that these showed that within the region of low acidity, the distribution coefficients of the rare earth elements, when extracted with diamylphosphoric acid, are directly proportional to the third degree of concentration of the diluent in the organic phase and reversely proportional to the third degree of concentration of the hydrogen ions in the water phase and do not depend on the content of the nitrate ions in the system. Based on these data the authors conclude that within the range of the given acidity, organic salts are extracted of rare earth metals. It is said that a usual reaction of salt formation takes place, with subsequent dissolution of these in the organic phase. The absence of, within limits, anions of the corresponding mineral acids in the organic phase, when their concentration in the water phase did not exceed 2M, is given as proof of this extraction mechanism. The authors have also shown that although in the organic phase the diamylphosphoric acids are completely dimerized, (Ref. 6 - 8: C. F. Coleman, J. Phys. Chem., 62, 2, 129 (1958);

Card 3/12

D.F. Pappard, G. W. Mason, J. L. Maier, W. J. Driscoll, J. Inorg. Nuclear Chem. 4, 5-6, 334, 1957; D.F. Peppard, G. W. Mason, S. W. Moline, J.Inorg. Nuclear Chem. 5, 2, 141, 1957;), yet, regardless of the degree of aggregation, the polymer molecule (or in this case the dimer molecule) of the diamylphosphoric acid, dissociates as a uni-basic acid, forming only one hydrogen ion. Thus, the authors present the equilibrium equation in the organic phase in the following form:

$$Me^{3+}_{org.} + 3H_2A_2\ org. \rightleftarrows Me(HA_2)_3\ org. + 3H^+_{org.} \qquad (1)$$

An expression relating to two equilibrial phases is given by introducing the corresponding equations of equilibrium, representing the distribution of Me^{3+} and H^+ between the organic and water phases:

$$Me^{3+}_{B} + 3H_2A_2\ org. \rightleftarrows Me(HA_2)_3\ org. + 3H^+_{B} \qquad (2)$$

The equilibrium constant of this reaction (q) is given as being:

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$$q = \frac{\left[Me(HA_2)_3\right]_{org.}\left[H^+\right]_B^3}{\left[Me^{3+}\right]_B\left[H_2A_2\right]_{org.}^3} \qquad (3)$$

At low concentration of HNO_3 ($<2M$) Me^{3+} is actually the only form in the water phase, i.e., the relative concentrations of other forms in the water phase are low. Thus, in this case the ratio

$$\frac{\left[Me(HA_2)_3\right]_{org.}}{\left[Me^{3+}\right]_B}$$

is replaced by K_p the distribution coefficient, and the equilibrium constant of equation (2) ^{p}will aquire the following form after substituting and taking the log.:

$$\lg q = \lg K_p + 3 \lg\left[H^+\right]_B - 3 \lg\left[H_2A_2\right]_{org.} \qquad (4)$$

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Taking into account that the analytical concentration of the extracting agent will be twice that of the concentration of its dimer form, equation (4) is rewritten for the equilibrium constant in the following form:

$$\lg q = \lg K_p + 3 \lg[H^+]_B - 3 \lg[HA]_{org.} + 3 \lg 2 \quad (5).$$

Equation (5) was used to evaluate the equilibrium constant for ittrium, without taking into account the hydrolysis and dissociation phenomena. Table 3 shows the values of the equilibrium constants obtained for ittrium. At higher acidities of the water phase, the drop in the distribution coefficients of the rate earth elements is slowed up, and then a certain increase in their values is noted. The latter is explained by the fact that with an increase in the concentration of the hydrogen ions, the mechanism of extraction itself is changed. An assumption is made that at high concentrations of hydrogen ions another extraction mechanism is present to that indicated. There are three tables, 5 figures and 10 references: 1 Soviet-bloc and 9 non-Soviet-bloc. The four recent English language pub-

lications read as follows: D. Dyrssen, Acta Chem. Scand., 11, 7, 1277, 1957; L. Selmi, F. Fuss, Chim.ind., 40, 193, 1958; C. F. Coleman, J. Phys. Chem., 62, 2, 129, 1958; J. R. V. Warer, Phosphorus and its Compounds, 1, N.Y.L., 1958.

Table 1: (1) Relationship of the distribution coefficients of ittrium and europium to the concentration of the nitric acid. (2) Element, (3) Concentration of HA (in M); (4) Diluent; (5) Equilibrial Concentration of HNO_3 in the water phase, (in M); (6) Distribution Coefficient K_p; (a) kerosene; (b) benzene; (c) benzene.

Card 7/12

KORPUSOV, G.V.; OZIRANER, S.N.; KHOLODKOVA, T.V., red.; VLASOVA, N.A., tekhn. red.

[Radioactive strontium] Radioaktivnyi strontsii. Moskva, Gos. izd-vo lit-ry v oblasti atomnoi nauki i tekhn., 1961. 34 p. (MIRA 14:11)
(Strontium--Isotopes)

S/830/62/000/001/006/012
E111/E192

AUTHORS: Korpusov, G.V., Yeskevich, I.V., and Zhirov, Ye.P.

TITLE: Group separation of rare-earth elements by the method of counter-current extraction

SOURCE: Ekstraktsiya; teoriya, primeneniye, apparatura. Ed. by A.P. Zefirov and M.M. Senyavin. Moscow, Gosatomizdat, 1962. 125-142

TEXT: This work deals with the preliminary separation of the rare earths into sub-groups by the counter-current extraction method. Various representative rare-earth concentrates were used. Purified commercial tri-butyl phosphate solvent was used. A horizontal glass extraction apparatus of the mixer-settler type, with maximum throughput of 6 litres/hour per phase, was used. Distribution of the rare-earth elements was determined with the aid of radioactive isotopes and their content by X-ray and spectrophotographic methods. The group separation of the rare-earth elements can be effected in 7-9 M nitric acid, the separation of concentrates rich in the cerium sub-group elements being the simplest, since the distribution coefficients change little with

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element concentration. Determination of the coefficients for this acidity for elements in neodymium concentrate at equilibrium concentration at 9, 20 and 25 °C showed that: 1) distribution-coefficient values for all the elements studied differ little from those for trace amounts of these elements; 2) the degree of separation of Nd and Sm (viz 2.8) is good enough for separation in a few stages; 3) the distribution coefficients increase with falling temperature, but the change over fluctuations from 15 to 20 °C is not sufficient to disturb the prevailing conditions. The scheme devised on the basis of these results for separating cerium-rich concentrates into sub-groups between Nd and Sm gave, for each stage, complete separation into the two sub-groups with approximately 90-95% theoretical efficiency. Similarly good results were obtained with a neodymium concentrate. In these experiments the feed was introduced half way along the apparatus, through which tributyl phosphate and the nitric acid wash solution were circulating in counter-current. In calculating process conditions for separating into sub-groups yttrium-earth rich concentrates, allowances must be made for the changes in

distribution coefficients with concentration. The system tested gave satisfactory separation at Gd: with a concentrate containing 11% La, 12.5 Ce, 1.6 Pr, 5 Nd, 1.4 Sm, - Eu, 7.5 Gd, 1.4 Tb, 8.7 Dy, 1.3 Ho, 2.4 Er, 0.15 Tu, 1.1 Yb, 0.5 Lu, 45 Y, the aqueous phase contained only 25% La, 48.9 Ce, 3 Pr, 12 Nd, 4.5 Sm, 8 Gd and 0.8 Tb; while the organic phase contained only 1% Gd, 0.85 Tb, 8.7 Dy, 2.3 Ho, 4.4 Er, 0.6 Tu, 2.2 Yg, 0.25 Lu and 79.4 Y.
There are 7 figures and 4 tables.

Card 3/3

KORPUSOV, G.V.; YESKEVICH, I.V.; PATRUSHEVA, Ye.N.; YERCHENKOV, V.V.; ALEKSEYEVA, L.R.

Regularities in the extraction distribution of rare earth elements in neutral solutions. Ekstr.; teor.,prim., app. no.2:117-140 '62. (MIRA 15:9)

(Rare earths) (Extraction (Chemistry))

S/078/62/007/009/007/007
B144/B101

AUTHORS: Korpusov, G. V., Levin, V. I., Brezhneva, N. Ye., Prokhorova, N. P., Yeskevich, I. V., Seredenko, P. M.

TITLE: Extractive separation of cerium

PERIODICAL: Zhurnal neorganicheskoy khimii, v. 7, no. 9, 1962, 2254-2261

TEXT: Practical methods for extractive separation of Ce^{III} from rare earth (RE) concentrates were developed by studying the distribution coefficients and taking account of the following factors: 1) The solvate formed in Ce^{IV} nitrate extraction by way of tributyl phosphate (TBP) from HNO_3 media of different concentration is $H_2[Ce(NO_3)_6] \cdot 2(C_4H_9)_3PO_4$. On complete saturation the organic phase contains per liter 200-210 g metallic Ce or 250 g CeO_2. 2) When TBP is diluted with hydrated kerosene, xylene, toluene, or CCl_4, the capacity changes proportionally with the dilution. 3) TBP must be purified by oxidation or vacuum distillation. 4) The optimum HNO_3 concentration is 3 - 5 moles/l and corresponds to the overall minimum

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Extractive separation of cerium ...

distribution coefficients of Re^{III}. 5) Oxidation should be obtained:
a) by H_2O_2 for pH>5 or by atmospheric O_2, if large quantities are involved;
b) by $KBrO_3$, $KMnO_4$, ozone, if small quantities must be separated.
6) Reextraction with H_2O_2 dissolved in dilute HNO_3 yields Ce^{III}. 7) The RE^{III} distribution coefficients depend on the Ce content in the organic phase and on the dilution of TBP. Hence 100% TBP and dilute TBP are suggested for the extraction respectively of large and small Ce quantities, or both methods can be combined. The operation is either continuous or intermittent. A plant consisting of one extraction and two washing stages is suggested. There are 4 figures and 5 tables.

SUBMITTED: November 27, 1961

Card 2/2

L 14423-63 EWT(m)/BDS AFFTC/ASD

ACCESSION NR: AP3003972 54

S/0089/63/015/001/0023/0030

AUTHOR: Brezhneva, N. Ye.; Levin, V. I.; Korpusov, G. V.; Bogacheva, Ye. K.; Man'ko, N. M.

TITLE: Separation of Zr^{95}, Nb^{95}, and Ru^{106} from a mixture of fission products by extraction with tributyl phosphate 19

SOURCE: Atomnaya energiya, v. 15, no. 1, 1963, 23-30

TOPIC TAGS: Zr^{95}, Nb^{95}, Ru^{106}, fission product, fission-product extraction, extracting agent, tributyl phosphate extracting agent, reextraction, solvent extraction, complexing agent, hydrogen peroxide, oxalic acid, sodium nitrite, nitric acid concentration, zirconium complex, niobium complex, ruthenium complex, distribution coefficient, Ru^{106} sulfide coprecipitation

ABSTRACT: Methods were studied for obtaining radiochemically pure Zr^{95}, Nb^{95}, and Ru^{106} by a general procedure for separation of fission products, described previously (N. Ye. Brezhneva, V. I. Levin, G. V. Korpusov i dr. V kn. "Trudy* Vtoroy mezhdunarodnoy konferentsii po mirnomu ispol'zovaniyu atomnoy energii." Dokl. sov. ucheny*kh. T. 4. M., Atomizdat, 1959, str. 57.). The physicochemical mechanism of solvent extraction with tributyl phosphate (TBP) was investigated

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under static and dynamic conditions. Pure Zr^{95}, Nb^{95}, Ru^{106}, Y^{91}, Eu^{152}, and Eu^{154} radioactive isotopes were used to prepare synthetic solutions. In the static method, extraction was effected by shaking in separatory funnels a synthetic nitric acid solution of each of the three pure isotopes, with pure TBP or with a 40% solution of TBP in kerosene. It was shown that the distribution coefficient (K_D) between the organic (TBP) phase and aqueous nitric acid 1) increases continuously during extraction of Nb or Zr when the equilibrium concentration of HNO_3 is increased, but passes through a sharp maximum in the case of Ru; 2) is much lower on extraction of Nb or Zr with dilute TBP than with pure TBP; 3) increases as the square of TBP concentration in the organic phase during extraction of Nb with dilute TBP; 4) is much higher in reextraction than in extraction of Nb or Zr from TBP; and 5) increases on consecutive re-extractions of Nb, Zr, or Ru. These and earlier data indicate the formation of extractable Zr or Nb complexes of the $Zr(NO_3)_4 \cdot nHNO_3 \cdot 2TBP$ type and of an extractable Ru complex, $RuNO(NO_3)_3$. Formation of the latter requires the presence of certain nitrogen oxides or nitrous acid, together with HNO_3 or NO_3^- ions. The increase in K_D on repeated reextractions of Ru is attributed to the conversion of $RuNO(NO_3)_3$ in the organic phase to more stable complexes with TBP. Similarly, several stable Zr or Nb complexes are present in both phases. The fact that the establishment of equilibrium between complexes is slow explains

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ACCESSION NR: AP3003972

the difficulty of Zr or Nb reextraction. However, this difficulty can be overcome by the addition of hydrogen peroxide or oxalic acid to aqueous HNO_3 as complexing agents for Nb and Zr, respectively. The data show that in the presence of the complexing agent K_D for Zr and Nb on reextraction is greatly diminished. Thus, it was possible to achieve 74—90% reextraction of Nb or Zr, provided [HNO_3] was no higher than 13 N for Nb or 5 N for Zr. Separation of Nb and Zr by extraction under dynamic conditions was carried out in a glass semi-countercurrent 20-stage extractor. Experimental extraction of a mixed Zr^{95} and Nb^{95} synthetic solution in 10 N HNO_3 containing 2% H_2O_2 produced nearly complete separation, as shown by the radioactivity absorption (transmission) curves of pure Zr^{95} and Nb^{95}. In another experiment, a nitric acid solution of iron hydroxide precipitate from the actual processing of fission products was extracted with 9.8 N HNO_3. Reextraction of Nb with HNO_3 and H_2O_2 was carried out first; then Zr was reextracted with HNO_3 and oxalic acid. The absorption (transmission) curves for the Zr^{95} and Nb^{95} products coincided with those for pure Zr^{95} and Nb^{95}. Separation of Ru^{106} from a mixture of long-lived radioactive isotopes by coprecipitation with nickel, copper, lead, or cadmium sulfides is described as a preliminary step to Ru^{106} extraction from 0.2 N HNO_3 solution of the sulfides. The 0.2 N $NaNO_2$ was added prior to extraction with TBP. It was shown that about 98% Ru^{106} was extracted from the sulfides. Orig. art. has: 8 figures and 7 tables.

Card 3/3

L 17580-63 EWP(q)/EWT(m)/BDS AFFTC/ASD JD/JG

ACCESSION NR: AP3005222 S/0089/63/015/002/0138/0146

AUTHORS: Levin, V. I.; Korpusov, G. V.; Man'ko, N. M.; Patrusheva, Ye. N.; Prokhorova, N. P.; Platnov, G. F. 59

TITLE: Extraction of tetravalent cerium with organic solvents

SOURCE: Atomnaya energiya, v. 15, no. 2, 1963, 138-146.

TOPIC TAGS: cerium, tetravalent cerium, organic solvent, ozone, diethyl ether, nitromethane, tributyl phosphate

ABSTRACT: Authors studied the oxidation of small quantities of cerium and the mechanism of the extraction precipitation of microamounts of radioactive cerium. Authors showed that the use of ozone is most expedient for the oxidation of cerium, as it does not contaminate the solution by extraneous ions. The extraction of Ce(IV) by diethyl ether, nitromethane, and tributyl phosphate was studied, and it has been shown that in the first case, cerium is extracted as saturated cerium acid. In the latter two cases, at low HNO_3 concentrations, cerium is extracted as nitrate whereas at high concentrations it is extracted as $H_2[Ce(NO_3)_6]$. The constants of the complex formation of Ce(IV) with the nitrate ions were estimated. Orig. art. has: 16 figures, 3 tables and 7 formulas.

Card 1/2

BR

ACCESSION NR: AT4035164 S/0000/63/000/000/0195/0210

AUTHOR: Korpusov, G. V.; Patrusheva, Ye. N.

TITLE: Extraction methods for the separation of the rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 195-210

TOPIC TAGS: rare earth, rare earth extraction, rare earth analysis, cerium, promethium, europium, yttrium, tributyl

ABSTRACT: In an extensive review of the extraction and separation of the rare-earth elements (cerium, promethium, europium, yttrium) with neutral organophosphorus compounds such as tributyl phosphate and diisoamylmethyl phosphonate, the authors discuss the equilibrated separation of the nitrates between two phases, the kinetics of the establishment of this equilibrium and the dynamics of the separation process. A study of the distribution of the individual elements gives basic information as to the composition of the extracted compounds the relationship between the distribution coefficient and the composition of the phases, and other characteristics of the system. Data on the variation in the tributyl phosphate ratio during the extraction of rare-earth elements of the cerium subgroup in relation to the concentration of the salting-out agents are tabulated. The

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ACCESSION NR: AT4035164

distribution of the rare-earth elements in multi-component mixtures was also investigated, and the distribution coefficients are plotted under various conditions of extraction. Comparative data on the extraction of rare-earth elements with different organic compounds shows that in weakly acid solutions, the separation of the elements of the cerium subgroup can be effect most suitably with salting out agents since the distribution coefficient of all the elements of this sub-group increases from 1.5-1.6 to 1.8-2.0 as the concentration of salting-out agent rises. Extraction with acid extractants, complex-forming agents, and amines is also studied and formulas are suggested for the extraction mechanism. Orig. art. has: 17 figures, 1 table and 5 formulas.

ASSOCIATION: Institut/geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 00

SUB CODE: IC NO REF SOV: 034 OTHER: 072

Card 2/2

BR

ACCESSION NR: AT4036166 S/0000/63/000/000/0211/0223

AUTHOR: Korpusov, G. V.; Kry*lov, Yu. S.; Zhirov, Ye. P.

TITLE: Laboratory multistep extraction assemblies for the separation of the rare-earth elements

SOURCE: AN SSSR. Institut geokhimii i analiticheskoy khimii. Redkozemel'ny*ye elementy* (Rare-earth elements). Moscow, Izd-vo AN SSSR, 1963, 211-223

TOPIC TAGS: rare earth, rare earth element, rare earth separation, geochemistry, analytical chemistry, extraction apparatus, countercurrent extraction, niobium, tantalum

ABSTRACT: In a preliminary review, the author describes and discusses five countercurrent or semi-countercurrent extraction assemblies designed by the authors and used for the separation of the rare-earth elements, niobium and tantalum. The assemblies are of the following types: (1) a glass extractor with air mixing for low-vapor-pressure organic solvents, whose construction and operation can be seen in the Enclosure; (2) a compact laboratory extraction unit composed of separate 10-cell standard polyethylene assemblies, with screw-mixers; (3) an enclosed extractor based on a mix-deposit principle and intended for a larger-scale process, the cells of which are partitioned into two compartments,

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ACCESSION NR: AT4035165

mixing, and depositing; (4) a semi-countercurrent laboratory extraction unit with air mixing, designed for a static heavy phase, with the other phase passing in succession through all the cells; and (5) a semi-countercurrent extractor unit for a static heavy phase with mechanical mixing, in which the light phase intermittently forms an emulsion with the heavy phase and, after layer separation in the next cell, moves on, while the heavy phase is recycled. Orig. art. has: 18 figures.

ASSOCIATION: Institut geokhimii i analiticheskoy khimii AN SSSR (Institute of Geochemistry and Analytical Chemistry, AN SSSR)

SUBMITTED: 31Oct63 DATE ACQ: 30Apr64 ENCL: 01

SUB CODE: IC NO REF SOV: 003 OTHER: 006

Card 2/3

...current cells can be combined.

Card 3/3

BREZHNEVA,N. Ye.; KORPUSOV, G. V.; PATRUSHEVA, Ye. N.; PROKHOROVA, N. P.; KRYLOV, Yu. S.

"Extraction of radioactive fission elements."

report submitted for 3rd Intl Conf, Peaceful Uses of Atomic Energy, Geneva, 31 Aug-9 Sep 64.

BREZHNEVA, N.Ye.; LEVIN, V.I.; KORPUSOV, G.V.; MAN'KO, N.M.; PLOTNOV, G.F.

Isolation of radioactive carrier-free cerium from a mixture of fission products. Raidokhimiia 6 no. 1:66-72 '64. (MIRA 17:6)

BREZHNEVA, N.Ye.; LEVIN, V.I.; KORFUSOV, G.V.; PATRUSHEVA, Ye.N.; MAN'KO, N.M.; KHORESHKO, L.T.

Separation of promethium-147 and europium-155 from a mixture of fission products by tributyl phosphate extraction. Radiokhimiia 6 no.3:265-276 '64. (MIRA 18:3)

PATRUSHEVA, Yo.N.; MEZHNEVA, N.Yo.; KORPUSOV, G.V.

Regularities in the distribution of europium between nitric acid solutions and some organophosphorus compounds. Radiokhimiia 6 no.3:276-280 '64. (MIRA 18:3)

TSYLOV, Yu.A. (Moskva); KORPUSOV, G.V. (Moskva); PUSTIL'NIK, A.I. (Moskva)

Density and viscosity of solutions in the system organic solvent rare-earth metal nitrate solution. Izv. AN SSSR. Met. no.3:59-64 My-Je '65. (MIRA 18:7)

L 11009-00 EWT(m)/EWP(t)/EWP(b) IJP(c) JD/JG

ACC NR: AP6000763 UR/0078/65/010/012/2787/2795

AUTHOR: Mikhlin, Ye. B.; Korpusov, G. V.

ORG: None

TITLE: Extraction of rare earth elements of the cerium subgroup with the diisoamyl ester of methylphosphonic acid

SOURCE: Zhurnal neorganicheskoy khimii, v. 10, no. 12, 1965, 2787-2795

TOPIC TAGS: solvent extraction, rare earth element, phosphate ester, lanthanum, cerium, neodymium, samarium

ABSTRACT: The object of the work was a more systematic investigation of the extractive properties of the diisoamyl ester of methylphosphonic acid with respect to individual rare earth elements and of the possibility of its use for their separation. To avoid hydrolysis, extractions were made from weak nitrate solutions in which the content of free nitric acid did not exceed 0.2-0.25 N. The oxides of the rare earth elements (lanthanum, cerium, praseodymium, neodymium, samarium) contained more than 99.9% of the basic element. Also tested were binary mixtures and the following concentrates: Concentrate (A), rich in cerium earths, had the following composition (%): La-30; Ce-3.4; Pr-15.6; Nd-45.4; Sm-4; total yttrium elements-1.6. Concentrate (B),

Card 1/2 UDC: 541.183.3:546.654/.659-38

L 11665-66

ACC NR: AP6000763

rich in lanthanum, had the following composition (%): La-86.5; Ce-3.3; Pr-3.2; Nd-7.0. The acidity of the diisoamyl ester of phosphonic acid did not exceed 0.0005 N. The experiments were carried out at room temperature (20 ± 2°) in separating funnels with a capacity of 150 ml. Distribution coefficients for the extractions were determined and are shown in tabular form. At an acidity of the aqueous phase of 0.1-0.2 N in HNO_3, the extractive capacity of the diisoamyl ester of methylphosphonic acid attained 200-205 gram/liter of total rare earth oxides. Saturation of the organic phase for the diisoamyl ester of methylphosphonic acid is reached at lower equilibrium concentrations of rare earth elements in the aqueous phase than for tributyl phosphate. This makes it possible to use a lower concentration of the salting out agent--$Al(NO_3)_3$--of the order of 2 or 3 N. Using 5 N $Al(NO_3)_3$ as a salting out agent, high values of the order of 2.5-3 are obtained for the separation coefficients for the vapors of lanthanum, cerium, neodymium, and samarium, which makes possible the use of the diisoamyl ester of methylphosphonic acid for the separation of rare earth elements of the cerium subgroup. Orig. art. has: 2 formulas, 5 figures, and 3 tables.

SUB CODE: 07/ SUBM DATE: 23May65/ ORIG REF: 009/ OTH REF: 002

jw
2/2
Card

L 33330-65 EWT(m)/EWP(b)/EWP(t) IJP(c) JD/JG

ACCESSION NR: AP5005524 S/0136/65/000/002/0066/0068

AUTHOR: Korpusov, G. V.; Tsylov, Yu. A.

TITLE: Countercurrent, box-type, extraction apparatus

SOURCE: Tsvetnyye metally, no. 2, 1965, 66-68

TOPIC TAGS: rare earth extraction, rare earth separation, countercurrent extraction, separation extractor

ABSTRACT: Separation of the rare earth metal salts is mostly done by extraction. Since vertical columns is impossible various types of box-type [illegible] sedi-

Card 1/4

ACCESSION NR: AP5005524

The [illegible] of the box is hermetically closed by a lid supporting a motor which drives the [illegible] to the same lid. [illegible]

ASSOCIATION: none

SUBMITTED: 00 ENCL: 00 SUB CODE: IC

OTHER: [illegible]

Card 2/2

ACC NR: AP7003025 SOURCE CODE: UR/0203/66/006/004/0703/0706

AUTHOR: Arof'yeva, A. V.; Korpusov, V. N.; Lysenko, I. A.; Orlyanskiy, A. D.; Ryabchikov, A. N.; Shuvarikova, N. F.

ORG: Institute of Applied Geophysics (Institut prikladnoy geofiziki)

TITLE: Results of a study of the wind regime in the meteor zone by the radar method

SOURCE: Geomagnetizm i aeronomiya, v. 6, no. 4, 1966, 703-706

TOPIC TAGS: atmospheric wind, meteorologic radar, signal to noise ratio

ABSTRACT: The method and results are presented of a study of wind circulation in the upper atmosphere conducted during the first half of 1964 near Moscow (56° N). The wind circulation was measured by radar tracking of meteor trail drifts at altitudes of 85—110 km.

The radar equipment used in the measurements had a coherent pulse output modulating a 33-Mc carrier. The pulse duration, repetition frequency, and power were 10 μsec, 500 cps, and approximately 100 kw, respectively. A form of coding was used in which every fifth pulse was distinct. A two stack transmitting antenna consisting of four 5-element Yagi antennas was employed. The receiver antenna had only one 5-element section. The

 UDC: 523.53:551.510.53

receiver sensitivity thus achieved was 2—3 μv at a signal-to-noise ratio of two. The display and recording equipment was triggered by the received pulses and was protected from spurious noise by 1) utilization of the coincidence of two consecutive marker pulses for correlating purposes, 2) preselection by repetition frequency discrimination, and 3) spurious signal suppression using a special detuned noise receiver. The displayed frames were filmed. Each frame contained information on the distance from the point of reflection of the transmitted pulse, the meteor echo diffraction pattern, the Doppler shift pattern, the date and time, and the antenna direction.

The horizontal component of the unit velocity of meteor trail movement was obtained from direct readings of the radial trail velocity components as recorded by the Doppler shifts. The direction of meteor trail movements was determined from the Doppler shift phase difference obtained at the outputs of two phase detectors in which the reference signals were approximately in quadrature.

The drift velocity readings had considerable fluctuations and, for this reason, were averaged on an hourly basis. The averages were used to study diurnal wind pattern changes. In order to secure meaningful averages using the equipment at hand (based on at least 50 measurements/hr),

measurements were made alternately, first in the NS and then in the EW directions. The results obtained at the same time of day but for different days were combined. Thus, about 7000—9000 individual readings were recorded during one 5—7 day measurement session.

On the basis of the observation results, it was established that the magnitude and direction of winds varied from day to day and from month to month. The experimental curves of wind velocities were anlayzed by Fourier series, i. e., they were reduced to a constant component and three harmonics (corresponding to 24-, 12-, and 8-hour variations). The second harmonic was predominant. The velocities of the zonal wind components attained maximum values of 20—30 m/sec in April and June. These velocities were lowest during January and March (1—5 m/sec); during February and May they were 12—15 m/sec. The direction varied from easterly during February and March to westerly during the April—May period, and again to easterly in June. The meridian wind components were directed to the south during every month except March. The magnitudes of these components varied from 5 to 18 m/sec; the maximum was observed in March.

Comparison of these results with the published data from similar studies at Manchester and Khar'kov established that similarities exist in

ACC NR: AP7003025

the monthly variations and that in all three cases the wind velocities decrease during spring and summer. The curves of the meridian wind components exhibit certain similarities, but the zonal component curves show closer agreenment. The data are different when the relative magnitudes of the wind velocities for the three locations are considered. Both wind components at Manchester were weaker than those studied in the USSR. This is attributed to the different climatological conditions at the points of observation and to the different times of observation with respect to the 11-year solar activity cycle. Orig. art. has: 3 figures. [FSB: v. 2, no. 10]

SUB CODE: 04,07 / SUBM DATE: 29Mar65 / ORIG REF: 004 / OTH REF: 003

Card 4/4

3.1720

78010
SOV/33-37-1-16/31

AUTHORS: Katasev, L. A., Korpusov, V. N., Orlyanskiy, A. D.

TITLE: Observations of Meteors With Radar With Two Receivers of Different Sensitivity

PERIODICAL: Astronomicheskiy zhurnal, 1960, Vol 37, Nr 1, pp 115-118 (USSR)

ABSTRACT: T. R. Kaiser has derived the relation between the numbers of observed meteors and the parameters of two radar transmitters of different sensitivity. Using this relation, the authors derive the expression for the parameter S which characterizes the structure of a meteor stream:

$$S = 1 + 2\frac{\log \frac{N_1}{N_2}}{\log\left[\frac{P_1}{P_2}\left(\frac{\lambda_1}{\lambda_2}\right)^3 \frac{\varepsilon_2}{\varepsilon_1}\right]}. \qquad (3)$$

Here, N is hourly number of meteors; P, peak intensity

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of radar signal; λ, wavelength; ε, threshold intensity of signal; indices 1 and 2 refer to the two transmitters. The standard radar transmitter of the Institute of Applied Geophysics of the Academy of Sciences, USSR, has a peak power of P = 80 kw and uses the wavelength λ = 4.1 m. It was modified by the latter two authors by adding another transmitter such that $\varepsilon_2/\varepsilon_1 = 4$, and an attachment for registering the number of meteors photographically. With this equipment the stream of Quadrantids was observed January 2-7, 1959, between the hours of 5 and 7 (local time). The quantity S did not remain constant but reached a maximum value of 2.96 on January 4; the authors explain it by increase in the number of small meteors. If t_1 and t_2 are the durations of the radio echo of one and the same meteor trail for the two radar transmitters, then it is possible to determine the coefficient of diffusion:

$$D = \frac{\lambda^2}{32\pi^2(t_2 - t_1)} \ln \frac{\varepsilon_1}{\varepsilon_2}. \qquad (6)$$

Observations of Meteors With Radar With Two Receivers of Different Sensitivity

78016
SOV/33-37-1-16/31

The authors thank G. N. Solov'ev, B. F. Chernyaev, and E. G. Simakina, who participated in observations and their reductions. There are 2 tables; 1 figure; and 5 references, 4 Soviet, 1 U.K. The U.K. reference is: T. R. Kaiser, Monthly Notices, 114, 39 (1954).

ASSOCIATION: Institute of Applied Geophysics of the Academy of Sciences, USSR (Institut prikladnoy geofiziki Akademii nauk SSSR)

SUBMITTED: April 14, 1959

Card 3/3

86654

3,9000 (104/, 1109, 1327)

S/034/60/000/210/001/002
E032/E114

AUTHORS: Korpusov, V.N., and Orlyanskiy, A.D.

TITLE: Radar Observations of Lyrids in 1959

PERIODICAL: Astronomicheskiy tsirkulyar, 1960, No. 210, pp. 26-27

TEXT: The observations were carried out between 21st and 24th April 1959, near Moscow, using standard radar apparatus working on a wavelength of $\lambda = 4.1$ m, pulse repetition frequency of 50 pps/sec and power per pulse of 80 kW. The aerial of the locator was a "wave channel" with a single reflector, a wave dipole and five directors. The reflected pulses were recorded photographically, using two receivers. The ratio of the true receiver sensitivities was 9.3. The high sensitivity receiver recorded 384 meteors in 24.3 hours, while the lower sensitivity receiver recorded 78 meteors in the same time. Hourly rates N_h for the meteors are shown in the following table (the number of meteors is shown in brackets):

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S/034/60/000/210/001/002
E032/E114

Radar Observations of Lyrids in 1959

Table 1

N_h \ Date	21/IV	22/IV	23/IV	24/IV
receiver I	21.0(101)	17.8(121)	12.9(99)	12.6(63)
receiver II	3.3 (16)	4.1 (28)	2.9(22)	2.4(12)

According to the above table, the average value of the exponent S in the mass distribution of meteor bodies is 2.50. Table 2 gives the distribution of the meteors with range R. The range was determined by interpolation between the corresponding range markers on the film. The results are given in the form of fractions in which the numerators represent the number of observations and the denominators the average value of the range.

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S/034/60/000/210/001/002
E032/E114

Radar Observations of Lyrids in 1959

Table 2

R, km	N/R av.	R	N/R av.
100 ≤ R < 150	17/125	400 ≤ R < 450	25/420
150 ≤ R < 200	52/175	450 ≤ R < 500	20/470
200 ≤ R < 250	24/220	500 ≤ R < 550	9/520
250 ≤ R < 300	29/275	550 ≤ R < 600	4/570
300 ≤ R < 350	51/330		
350 ≤ R < 400	45/370	800 ≤ R < 850	2/825

Table 3 shows the distribution of durations of the radio echoes from meteor trails (numerators = number of observations, denominator = average duration).

Card 3/4

ASSOCIATION: Institut prikladnoy geofiziki AN SSSR
(Institute of Applied Geophysics, AS USSR)

SUBMITTED: August 30, 1959

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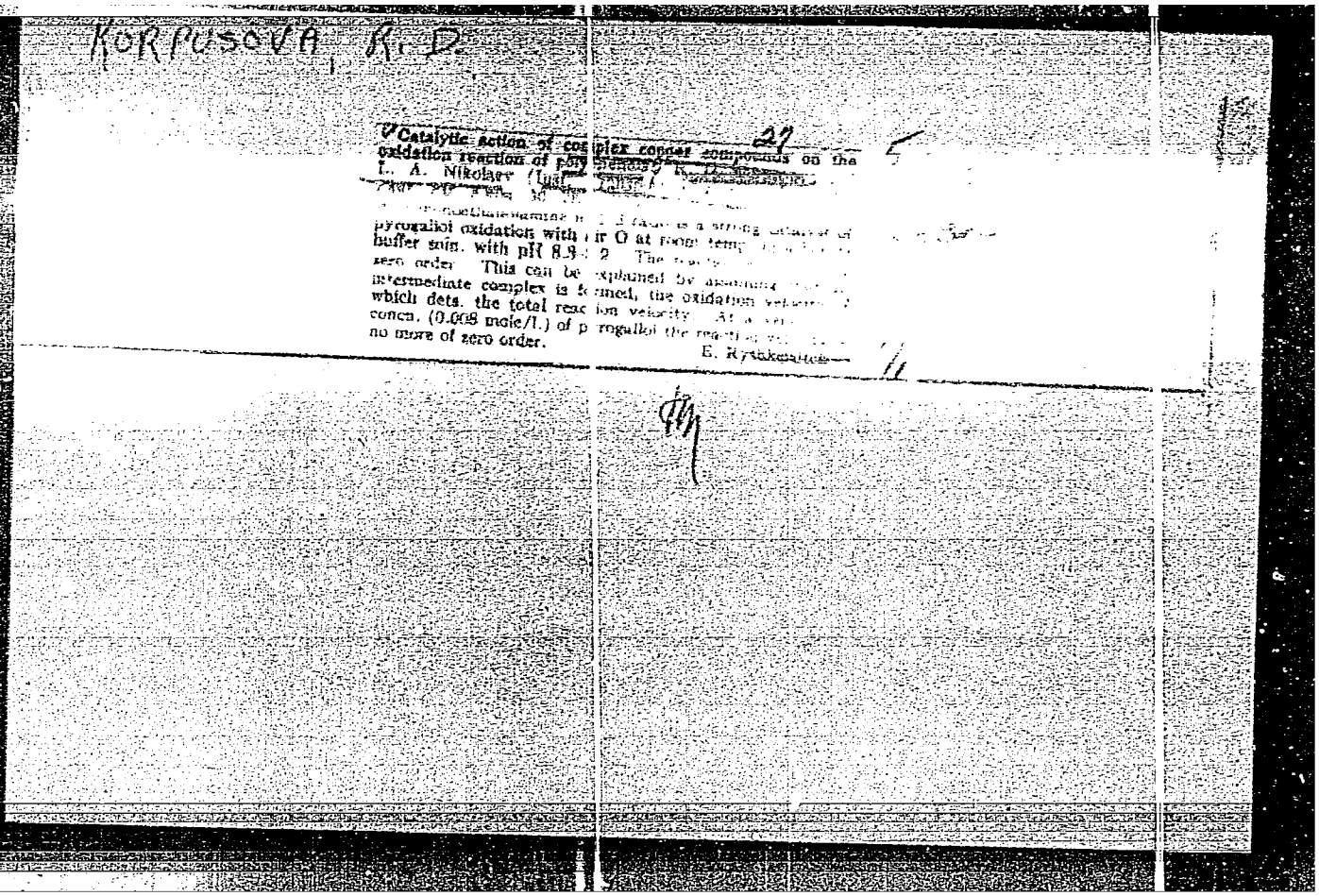

KORPUSOVA, R. D.

Catalytic action of complex copper compounds on the oxidation reaction of [illegible]

L. A. Nikolaev (Ivan[illegible]

pyrogallol oxidation with [illegible] ir O at room temp[illegible] buffer soln. with pH 8.8 [illegible] 2 The [illegible] zero order. This can be [illegible] explained by assuming [illegible] intermediate complex is f[illegible]rmed, the oxidation [illegible] which dets. the total reac[illegible]ion velocity. At a [illegible] concn. (0.005 mole/l.) of p[illegible]rogallol the reaction [illegible] no more of zero order.

E. Ryabokobylko

AUTHOR: Korpusova, R. D.

SOV/156 58-1-23/46

TITLE: The Catalytic Oxidation of Pyrogallol and Phloroglucinol in the Presence of Various Copper Complexes (Kataliticheskoye okisleniye pirogallola i floroglyutsina v prisutstvii razlichnykh kompleksov medi)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 1, pp. 94 - 98 (USSR)

ABSTRACT: The activation of the oxydase function of copper by the bond of the copper ion in the shape of complex compounds (Ref 1) is theoretically very interesting from the point of view of the investigation of biocatalysts. In the present paper data are given with respect to the substances mentioned in the title. The methods are described at the beginning. Table 1 gives data on the absorption of oxygen by the solutions of the two mentioned substances with and without catalyst. In the case of pyrogallol copper complexes were used with: pyridine, ethyl amine, isopropanol amine, propylene- and ethylene diamine as catalysts (with a 10% excess). In several cases also the dependence of the activity on the amine concentration was in-

Card 1/4

vestigated. From the obtained results it may be concluded that the chemical nature and the structure of the addendum influences to a great extent the catalytic activity of the complex. Isopropanol amine was the most active one of the addenda containing NH_2 and OH. The ethanol amines are less active. The transition from mono- to di- and to triamine corresponds to the reduction of the activity. The prolongation of the carbon chain in diamines reduces the activity of the complexes. In contrast to this, the catalase function rises with the prolongation of the chain (Ref 2). The ethyl amine complex is more active than the complexes with diamines and amine alcohols. Among the heterocyclic nitrogenous compounds the pyridine complex was more active than α- and β-picoline. The latter were far more active than all others, except the pyridine complex. Thus the introduction of the CH_2-group reduces the complex activity, approximately like in the case of diamines. The activity of the isopropanol amine - and pyridine complex as compared to the phloroglucinol oxidation was proved; also in this case the pyridine complex is the more active one (Fig 1). The order of the oxidation reaction with respect to pyrogallol

is equal to zero. This may be explained by the formation of a mixed complex copper-pyridine-pyrogallol (as well as by the mono-ethanol amine complex). The reaction velocity is determined by the oxidation velocity of the mentioned complex. Finally the authors deal with the dependence of the oxidation velocity on the amine concentration (Fig 4) and the activation energy. There are 4 figures, 1 table, and 6 references, 5 of which are Soviet.

ASSOCIATION: Kafedra khimii Moskovskogo instituta inzhenerov transporta im.I.V.Stalina (Chair of Chemistry of the Moscow Institute of RR Engineers imeni I.V. Stalin)

SUBMITTED: October 10, 1957

The Catalytic Oxidation of Pyrogallol and Phloroglucinol SOV/ -58-1-23/46
in the Presence of Various Copper Complexes

Card 4/4

AUTHORS: Korpusova, R. D., Nikolayev, L. A. SOV/156-58-2-8/40

TITLE: Catalytic Properties of Some Complex Compounds of Copper and Their Addenda (Kataliticheskiye svoystva nekotorykh kompleksnykh soyedineniy medi i ikh addendov)

PERIODICAL: Nauchnyye doklady vysshey shkoly, Khimiya i khimicheskaya tekhnologiya, 1958, Nr 2, pp. 233-237 (USSR)

ABSTRACT: Polyphenyl-oxidase is one of the most important oxidizing ferments, catalyzing the oxidation of polyphenols. This enzyme belongs to the metallic proteids and contains copper. So far nobody has advanced a **theory** concerning the form in which copper, in this case, participates in reactions. It can be affirmed that a complex compound is concerned and that the complex formation is looked upon the very cause of the characteristic **specificity** of the ferment. The complex compounds of copper accelerate the process of oxidation (oxidation of pyrogallol and phloroglucinol by means of oxygen) (Ref 2). This influence depends largely on the chemical properties of the addenda. The present paper was intended to clear up the problem of the addenda in complex compounds, as in the title mentioned (i.e. the problem of amines of different

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types) and to compare their activity with that of the complexes. The kinetics of the processes was studied volumetrically. Tests brought ~~out~~ interesting results: The amines themselves turned out to be substances of striking catalytic properties with regard to the oxidation of pyrogallol. Table 1 shows curves giving the absorption of oxygen by pyrogallol solutions containing equimolar quantities of different amines. A mixture of 0,01 moles of pyridine, diethanol amine or monoethanol amine rapidly accelerates the process of oxidation . Triethanol amine is less active. The rate of oxidation is inferior without catalyst. The copper ion accelerates oxidation in acid and weak alkaline solutions but its activity decreases rapidly because of a formation of a less active complex of pyrogallol. Table 1 shows the curves showing the oxygen absorption of pyrogallol solutions containing 1 mg of copper as corresponding complex. The catalytic effect is, in this case, greater than that of the copper ion and that of the amine together. Thus, the complex formation increases the activity of the amines , but most violently that of pyridine di- and monoethanol amine. The activity of free amines in

Catalytic Properties of Some Complex Compounds of Copper and Their Addenda

ethylene and propylene diamine remains, after the formation of the complex, virtually the same. These results stress a certain dependence between the chemical properties of the addendum and of the thermodynamic peculiarities of the transition state. There are 3 figures, 2 tables, and 5 references, 4 of which are Soviet.

ASSOCIATION: Kafedra khimii Moskovskogo instituta inzhenerov transporta im I. V. Stalina
(Chair of Chemistry of the Moscow Institute for Transport-engineers imeni I. V. Stalin)

SUBMITTED: October 14, 1957

S/137/62/000/001/037/237
A060/A101

AUTHOR: Korrea, A.

TITLE: Technology of smelting, casting, and heat-treating of certain aluminum alloys

PERIODICAL: Referativnyy zhurnal, Metallurgiya, no. 1, 1962, 32, abstract 1G238 (V sb. "26-y Mezhdunar. kongress liteyshchikov, 1959", Moscow, Mashgiz, 1961, 593 - 608)

TEXT: The properties of Cu-Zn-Al alloys were investigated on experimental castings. For the sake of a more complete study of the characteristics of these alloys, the principal characteristics of pure Al and of certain binary and ternary alloys with Al base were considered as a preliminary.

G. Svodtseva

[Abstracter's note: Complete translation]

Card 1/1

KORROVITS, Kh. Kh.

"Use of Ash From the Pulverized Burning of Pribaltic Combustible Shale in the Preparation of Concrete and Reinforced Concrete Structural Parts." Cand Tech Sci, Leningrad Order of Labor Red Banner Construction Engineering Inst, Min Higher Education USSR, Leningrad-Tallin, 1954. (KL, No 10, Mar 55)

So: Sum, 670, 29 Sept 55 - Survey of Scientific and Technical Dissertations Defended at USSR Higher Educational Institutions (15)

ANTONOV, A.; YELINSON, A.; MYAGI, Kh.Ya. [Magi, H.]; KORROVITS, Kh.Kh., red.; KUKIN, V.N., red.; EINBERG, K., tekhn. red.

[Catalog of standard estimates for building operations for the construction in the Estonian S.S.R.] Ehitustoode uksushinnete kataloog Eesti NSV ehitustele. Katalog edinichnykh rastsenok na stroitel'nye raboty dlia stroitel'stva v Estonskoi SSR. Izd.2. Tallinn, Eesti Riiklik Kirjastus. Vol.1. 1960. 754 p. (MIRA 15:2)

1. Estonian S.S.R. Riiklik Ehituse ja Arhitektuuri Komitee. (Estonia--Building--Estimates)

S/0137/63/000/012/I076/I076

ACCESSION NR: AR4014155

SOURCE: RZh. Metallurgiya, Abs. 12I506

AUTHOR: Shokalov, A. A.; Korsak, A. A.

TITLE: New high-coercivity alloy for permanent magnets

CITED SOURCE: Tr. N.-i. in-ta tokov vy*sokoy chastoty*, vy*p. 4, 1963, 82-96

TOPIC TAGS: Permanent magnet alloy, magnet grindability, cerium, vanadium

TRANSLATION: The alloy ANKoTi-5i of the following composition was developed (in %): Co 34-38, Ni 15, Al 7.8, Cu 4, Ti 5-6, Fe, balance. H_c of the alloy is 1300-1500 Oe, B_r is 8500-800 gs, $(BH)_m$ is (4-5) x 10^6 gs Oe. The effect of 0.05-0.1% Ce and 0.1 and 0.5% V on the grindability of magnets was investigated. Ce improves the grindability, and V does not. The following treatment is recommended: hardening temperature 1250 ± 20°, average rate of cooling in the 1250-800° range 150-200 deg/min, isothermal thermomechanical treatment at 800±10°, 5-10 min with subsequent cooling in air, double tempering at 650±10°

Card 1/2

Card 2/2

KORSAK, B.N., insh.

Removable attachment for the SM-529 hydraulic jack used for pre-stressing reinforcements. Mekh.stroi. 14 no.6:26-27 Je '57. (MIRA 10:11)

(Hydraulic jacks) (Prestressed concrete)

KORSAK, B.N., inzhener.

Removable device for prestressing reinforcements attached to the SM-529 hydraulic jack. Mov.tekh.i pered.op.v stroi. 19 no.4:24-25 Ap '57. (MLRA 10:7)

(Hydraulic jacks) (Prestressed concrete)

OGIYENKO, I.I., inzh.; KORSAK, B.N., inzh.

Screw pump for feeding milk of lime. Suggested by I.I. Ogienko, B.N.Korsak. Rats.i izobr.predl.v stroi. no.11: 97-101 '59. (MIRA 13:3)

1. Stroitel'noye upravleniye No.1 tresta Mosenergostroy Moskovskogo sovnarkhoza.
(Pumping machinery) (Lime)

KORSAK, J.

A "multibranch" cooperative at Michalowice; a satire, p. 7. (ROLNIK SPOLDZIELCA, Warszawa, Vol. 8, no. 5, Jan. 1955.)

SO: Monthly List of East European Accessions, (EEAL), LC, Vol. 4, No. 6, Jun. 1955, Uncl.

KORSAK, J.

Organizational methods of equalizing the course of vapor loading.

p. 247
Vol. 9, no. 6, Aug. 1955
PRZEMYSL WLOKIENNICZY
Lodz

SO: Monthly List of East European Accessions (EEAL), LC, Vol. 5, no. 3
March 1956

KORSAK, J.

KORSAK, J. Possibility of the improvement of thermal management in the plants subordinate to the Central Administration of the Cotton Industry - North. p. 74

Vol. 10, no. 2, 1956
PRZEMYSL WLOKIENNICZY
TECHNOLOGY
Lods, Poland

So: East European Accession Vol. 6, no. 2, 1957

L 45219-66 EWT(1)

ACC NR: AP6027904 SOURCE CODE: UR/0369/66/005/001/0119/0122

AUTHOR: Korsak, K. V.; Strizhevskiy, V. L.

ORG: none

TITLE: Microtheory of producing a difference frequency based on the nonlinear photoconductivity effect of semiconductors during excitation by two laser sources with close frequencies

SOURCE: Zhurnal prikladnoy spektroskopii, v. 5, no. 1, 1966, 119-122

TOPIC TAGS: photoconductivity, difference frequency, laser excitation

ABSTRACT: The problem of photoconductivity to a continuous spectrum under the effect of two monochromatic electromagnetic waves with near frequencies is solved by methods of microscopic theory. It is shown that the probability of finding the system in an excited state and the concentration of excited electrons in the irradiated medium contains, besides the usual constant term, interference terms changing with

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ACC NR: AP6027904

the difference frequency $\omega = \omega_1 - \omega_2$. With increasing ω, the relative contribution of these terms decreases as Γ/ω, where Γ is the inverse lifetime of the excited state. Orig. art. has: 13 formulas. [DW]

SUB CODE: 20/ SUBM DATE: 03May65/ ORIG REF: 001/ OTH REF: 014

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Card 2/2

KORSAK, L.L.

BORTS, M.A., inzh.; ZARUBIN, L.S., kand.tekhn.nauk; KAMINSKIY, V.S., kand. tekhn.nauk; KORSAK, L.L., inzh.

Studying the hydrodynamics of liquids in the rotor of a precipitating centrifuge by means of a radioactive isotopes. Sbor. inform. po obog. i brik. ugl. no.4:3-12 '57. (MIRA 11:6)
(Hydrodynamics) (Radioisotopes--Industrial applications)
(Coal preparation--Equipment and supplies)

KORSAR, L. L.

10(4); 21(5); 24(8) PHASE I BOOK EXPLOITATION SOV/2457

Vsesoyuznaya nauchno-tekhnicheskaya konferentsiya po primeneniyu radioaktivnykh i stabil'nykh izotopov i izlucheniy v narodnom khozyaystve i nauke. 2d, Moscow, 1957

Teplotekhnika i gidrodinamika; trudy konferentsii, tom. 4 (Heat Engineering and Hydrodynamics; Transactions of the All-Union Conference on the Use of Radioactive and Stable Isotopes and Radiation in the National Economy and Science, Vol 4) Moscow, Gosenergoizdat, 1958. 88 p. Errata slip inserted. 2,500 copies printed.

Sponsoring Agencies: Akademiya nauk SSSR, and USSR. Glavnoye upravleniye po ispol'zovaniyu atomnoy energii.

Eds.: M. A. Styrikovich (Resp. Ed.), G. Ya. Kholodovskiy, and M. S. Fraichev; Ed. of Publ. House: L. N. Sinel'nikova; Tech. Ed.: N. I. Borunov.

PURPOSE: This collection of articles is intended for scientists and laboratory workers concerned with the use of radioactive and stable isotopes.

COVERAGE: This collection of papers deals with the application of radioactive and stable isotopes as measuring tools in various types of scientific investigation. No personalities are mentioned. References are given after some of the articles.

BOCHKOV, Yu.N., inzh.; KORSAK, L.L., inzh.

Using radioactive isotopes in studying the performance of worm centrifugal filters for the settling of coals. Obog.i brik.ugl. no.15:36-44 '60. (MIRA 14:12)
(Radioisotopes—Industrial applications)
(Coal preparation plants—Equipment and supplies)
(Separators(Machines)—Testing)

AKOPOV, M.K.; KORSAK, L.L.

Study of the movement of solid particles in a heavy medium in a hydrocyclone. Obog.i brik.ugl. no.30:45-49 '63. (MIRA 17:4)

KAMINSKIY, V.S., kand.tekhn.nauk; SOKOLOVA, M.S., kand.tekhn.nauk; BRUK, O.L., inzh.; KORSAK, L.L., inzh.

Study of the adsorption of calcium chloride by the products of gravity preparation of coals using the radioisotope method. Obog.i brik.ugl. no.30:65-70 '63. (MIRA 17:4)

KORSAK, O.G.

SERDYUK, Z.Ya., i KORSAK, O.G.

New data on the geology of the Tera' region in the Kuznetsk Basin. Trudy Lab.geol.ugl. no.6:546-550 '56. (MLRA 10:2)

1. Zapadno-Sibirskoye geologicheskoye upravleniye.
(Kuznetsk Basin--Coal geology)

USSR/Electric Power-Hydro Mar 1947
Fuel-Economy

"Use of Surplus Energy from Hydro-electric Plants for Centralizing Fuel Supply," S P Korsak, 6 pp

"Elektrichestvo" No 3

Discussion of plants in general, using Murmansk as an illustration.

1T24

KORSAK, S.P.

KORSAK, S.P., inzhener; GORTINSKIY, S.M., redaktor; FRIDKIN, A.M., tekhnicheskiy redaktor.

[Electric water heaters and steam boilers] Elektricheskie vodonagrevateli i parovye kotly. Moskva, Ges. energ. izd-vo, 1954. 125 p. (MLRA 7:7)
(Electric heating) (Steam boilers)

KORSAK, S.P.

AID P - 3508

Subject : USSR/Power Eng

Card 1/1 Pub. 26 - 2/30

Author : Berson, S. Ya., I. P. Ivanov, I. M. Makhnovetskiy, S. P. Korsak, and M. D. Mikhel'man, Engs.

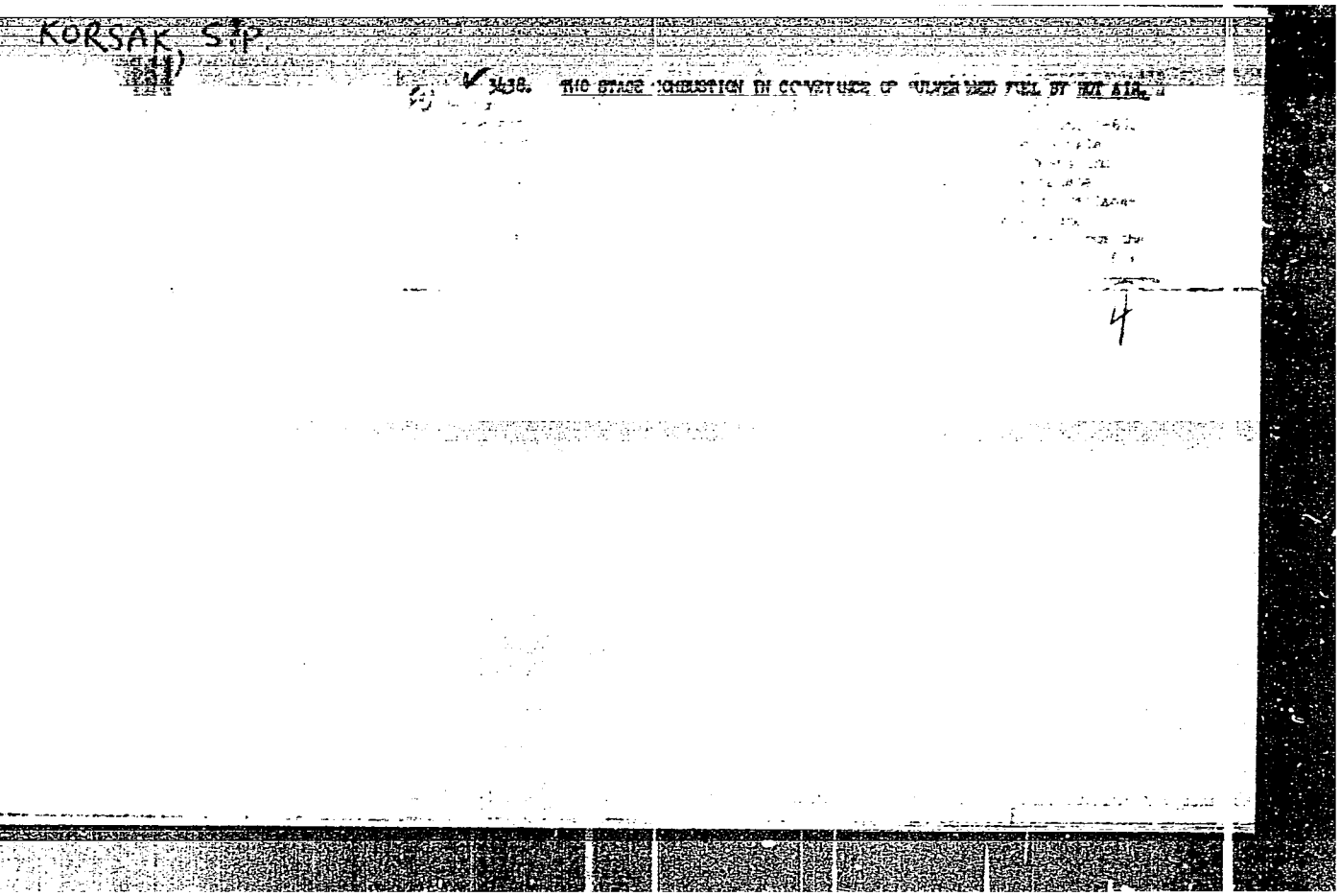
Title : Two stage hot air combustion of pulverized coal

Periodical : Elek. sta., 9, 5-8, S 1955

Abstract : The authors discuss in detail certain changes made on boilers of the PK-9-200/35 type, which use hard coal and are installed at one of the thermal power plants. The article describes the results of 4 years work in designing, testing and improving of the boiler design. Further research and tests are recommended. Three diagrams.

Institution : None

Submitted : No date



KORSAK, Tadeusz, mgr inz.

Equipment for the preparation of concrete masses and for concreting. Przegl mech 23 no.9/10:286-288 25 My '64.

1.Deputy Head, Technological Department, Association of the Construction Machine Industry, Warsaw.

KORPUSOV, V.G., tekhnik (Leninsk-Kuznetskiy)

Graph showing the automation of a unit with the ATN-14 pump. Vod. i san. tekhn. no.10:35 O '65. (MIRA 18:11)

KORPUSOV, V.I.; OGORODNIKOV, B.I.; KIRICHENKO, V.N.

Measuring the diffusion coefficient of RaA atoms by the method of deposition from a laminar flow. Atom. energ. 17 no.3:221-222 S '64. (MIRA 17:9)

L 14105-66 EWT(d)/T/EWP(1) IJP(c)
ACC NR: AP6003131 SOURCE CODE: UR/0315/65/000/012/0003/0009

AUTHOR: Sarkisov, N. G.; Beskin, I. A.; Korsak, V. K. 32 B

ORG: none

TITLE: Procedure for developing a multidepartmental system of information handling

SOURCE: Nauchno-tekhnicheskaya informatsiya, no. 12, 1965, 3-9

TOPIC TAGS: scientific information, storage and retrieval, queueing theory

ABSTRACT: It is proposed to construct information handling systems using the mathematical apparatus and methods of queueing theory, labeling the requirements of the consumers of scientific and technical information as the inputs. Use of queueing theory allows a qualitative evaluation of system activity. The procedure for making computations for any multidepartmental system is shown. The authors provide a classification of groups and classes of information requirements and information consumers. The latter include department heads and engineering control executives, scientific research, educational, planning, and designing organizations, manufacturing plants, and subcontractors. The interests matching factor ξ, which considers

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L 14105-66

ACC NR: AP6003131

how well the requirements of different groups of consumers coincide, is introduced as a criterion of the effectiveness of a multidepartmental system. The process of forming scientific and technical information outputs and the technology of operation of a central information reference fund are briefly described. Network planning and control methods are recommended as bases for development of long-range plans for multidepartmental systems. The procedure discussed yields the data prerequisite to creating multidepartmental systems, determining the scale of future work, and evaluating the worth of the particular solutions decided upon. The authors illustrate their article with information flow diagrams charting the flow of information in a central reference system and the process of formation of information flows. Economic factors such as the man hours required to produce various scientific and technical information outputs, are considered. Orig. art. has: 2 figures, 1 table, 10 formulas.

SUB CODE: 05/ SUBM DATE: 20Aug65/ ORIG REF: 016/ OTH REF: 007

BVK

Card 2/2

BORISOV, V.V.; KORROL', V.V.; TUNKOV, V.P.; TVIROV, V.I.

Deoxidation of steel by aluminum-silicon. Stal' 25 no.8:810 S '65. (MIRA 18:9)

1. TSentral'nyy nauchno-issledovatel'skiy institut chernoy metallurgii i Metallurgicheskiy zavod "Serp i molot".

KORSAK, V.K.

Means of trackless land transportation in the Far North.
Prob. Sev. no.5:107-129 '63. (MIRA 16:11)

1. Nauchnyy sovet po transportu dlya Severa Gosudarstvennogo komiteta Soveta Ministrov RSFSR po koordinatsii nauchno-issledovatel'skikh rabot.

KORSAK, V. V.

"De l'action de l'hexachlorethane sur les composes de Grignard." Korsak, V. V. (p. 1153)

SO: Journal of General Chemistry
(Zhurnal Obshchei Khimii) 1939, Volume 9, #13